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EXAMINER

WILDER, PETER C

ART UNIT	PAPER NUMBER
2623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,376

Applicant(s)

LEE ET AL.

Examiner

Peter C. Wilder

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Note to applicant

Art Units 2611, 2614 and 2617 have changed to 2623. Please make all future correspondence indicate the new designation 2623.

Specification

The disclosure is objected to because of the following informalities: Paragraph 39 line 12 teaches "1st ~3rd audio modulators" with regard to the video signal, the examiner believes the applicant meant to say "1st ~3rd video modulators." Also line 15 teaches "audio demodulators" which should be changed to "video demodulators."

Appropriate correction is required.

Claim Objections

Claim 17 is objected to because of the following informalities: Claim 17 on page 19 line 14 states a first antenna and then on line 16 a first through sixth antenna is recited again. It should be made clear that the two first antenna are different physical antenna. For example state "first transmission antenna" in line 14 of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lindemann et al. (U.S. 2004/0223622 A1) further in view of Lee (U.S. 6608907 B1) further in view of Williams, Jr et al. (U.S. 6175861 B1) further in view of Watanabe et al. (U.S. 6433832 B2).

Referring to claim 1, the applicant's admitted art teaches a system for reproducing a digital TV signal (Figure 5), comprising a computer system (Figure 5 elements 111, 114, 115, 117) and a display system (Figure 5 element 119), the computer system comprising:

a signal dividing means receiving the digital TV signal (Figure 5 element 111 and the applicants specification on page 2 paragraph 6 teaches dividing the signal), and dividing the digital TV signal into digital video signals and digital audio signals after a predetermined signal processing (Figure 5 element 111 and the applicants specification on page 2 paragraph 6 teaches dividing the signal),

a video decoding means decoding the digital video signals outputted from the signal dividing means into analog video signals (Page 2, Paragraph 6 and Figure 5 element 114), and outputting low frequency analog video signals by colors (Page 2, Paragraph 6; and according to the detailed specification of the applicant page 9, paragraph 34 teaches low frequency signals are un-modulated signals/non-transmission signals, thus page 2 paragraph 6 teaches un-modulated analog signals coming out of a decoder element 114 in Figure 5 which are thus low frequency)

an audio decoding means decoding the digital audio signals outputted from the signal dividing means into analog audio signals with a plurality of channels (Page 2, Paragraph 7 and Figure 5 elements 111, 115, and 123),

the display system having (Figure 5 element 119):

The applicant's conceded prior art fails to teach audio channels corresponding to predetermined frequencies, a plurality of frequency-modulators frequency-modulating the analog video signals and the analog audio signals, in response to intermediate frequencies, respectively, and a wireless transmitter wirelessly transmitting the signals modulated by the frequency-modulators; and

a plurality of first wireless receivers wirelessly receiving the analog audio signals transmitted from the wireless transmitter, via the channels

a plurality of first wireless receivers wirelessly receiving the analog audio signals transmitted from the wireless transmitter, via the channels

a plurality of second wireless receivers wirelessly receiving the analog video signals transmitted from the wireless transmitter,

a plurality of second frequency demodulators respectively connected to the second wireless receivers and frequency-demodulating the analog video signals by the colors, and

display and audio apparatuses outputting the video and audio signals demodulated by the first and second frequency demodulators, respectively.

In an analogous art Lindemann teaches audio channels corresponding to predetermined frequencies (Paragraph 75 and Figure 16 teaches that each speaker channel is on a different carrier frequency),

a plurality of frequency-modulators frequency-modulating the audio signals in response to intermediate frequencies, respectively (Paragraph 75 and Figure 16 teaches that each speaker channel is on a different carrier frequency and for each speaker to be able to receive a different carrier frequency corresponding to the channel, a plurality of frequency-modulators would have to exist; an intermediate frequency is determined by the examiner to mean the frequencies that the respective audio channels are modulated at for transmission which is a frequency between 0 and infinity hertz thus the speaker channel the system uses has to exist in this range),

a plurality of first wireless receivers wirelessly receiving the audio signals transmitted from the wireless transmitter, via the channels (Figure 16 teaches a speaker with an antenna element 300 and Paragraph 75 teaches loudspeakers (which is plural) exist) receiving signals on different frequencies/channels),

a plurality of first frequency demodulators respectively connected to the first wireless receivers and frequency-demodulating the audio signals (Paragraph 75 and Figure 16 teaches that each speaker channel is on a different carrier frequency and for each speaker to receive a different carrier frequency corresponding to the channel a plurality of frequency-demodulators would have to exist, one in each speaker), and

audio apparatuses outputting the audio signals demodulated by the first frequency demodulators (Paragraph 75 teaches the RF frequency channel embodiment of Figure 16 is implemented on Figure 15, and Figure 15A teaches multiple loudspeakers 100, 110, and 120 each with a tweeter and woofer for outputting audio).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art with the plurality of frequency-modulators frequency-modulating an audio signal of Lindemann for the purpose of reducing the number of annoying wires in a home theater system with many speakers (Paragraph 5, Lindemann).

The applicants conceded prior art and Lindemann fail to teach analog audio signals, a plurality of frequency-modulators frequency-modulating the analog video signals, the display system having: a plurality of second wireless receivers wirelessly receiving the analog video signals transmitted from the wireless transmitter, a plurality of second frequency demodulators respectively connected to the second wireless receivers and frequency-demodulating the analog video signals by the colors, and display apparatuses outputting the video signals demodulated by the first frequency demodulators.

In an analogous art Lee teaches analog audio signals (Column 3 lines 30-39 and Figure 2 and 3).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicants prior art and Lindemann using the analog speaker system of Lee for the purpose of supporting the ability of the system to integrate into other analog systems.

The applicants conceded prior art, Lindemann, and Lee fail to teach a plurality of frequency-modulators frequency-modulating the analog video signals, the display system having: a plurality of second wireless receivers wirelessly receiving the analog video signals transmitted from the wireless transmitter, a plurality of second frequency demodulators respectively connected to the second wireless receivers and frequency-demodulating the analog video signals by the colors, and display apparatuses outputting the video signals demodulated by the first frequency demodulators.

In an analogous art Williams teaches a plurality of frequency-modulators frequency-modulating the analog video signals (Column 20 lines 51-67 and Column 21 lines 1-21 teach modulator and demodulator sets existing for receiving component input of a video signal and the monitor in Figure 27 element 225 has demodulators to receive the signal),

a plurality of second receivers receiving the analog video signals transmitted from the transmitter (Column 20 lines 51-67 and Column 21 lines 1-21 teaches modulator demodulator sets existing for receiving component input of a video signal and the monitor in Figure 27 element 225 has demodulators to receive the signal, the receivers are the wires leading to the demodulators in Figure 27),

a plurality of second frequency demodulators respectively connected to the second wireless receivers and frequency-demodulating the analog video signals by the colors (Column 20 lines 51-67 and Column 21 lines 1-21 teaches modulator demodulator sets existing for receiving component input of a video signal and the monitor in Figure 27 element 225 has demodulators to receive the signal), and

display apparatuses outputting the video signals demodulated by the first frequency demodulators (Figure 27 element 225).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art, Lindemann, and Lee with the a plurality of frequency-modulators frequency-modulating the video signals of Williams for the purpose being able to integrate the use of a television or any display device that can only receive component video input signals.

The applicants conceded prior art, Lindemann, Lee, and Williams fail to teach wireless receivers receiving video.

In an analogous art Watanabe teaches wireless receivers receiving video (Figure 1 element 51 and Column 5 lines 9-18 and lines 33-39 teach a receiving device element

51 that receives RGB signals at element 21 and the signals can be transmitted wirelessly using radio transmission from device element 10).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicants prior art, Lindemann, Lee, and Williams using the wireless module system of Watanabe for the purpose of transmitting a the image information between the two devices without using wires that can get tangled.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lindemann et al. (U.S. 2004/0223622 A1) further in view of Lee (U.S. 6608907 B1) further in view of Williams, Jr et al. (U.S. 6175861 B1) further in view of Watanabe et al. (U.S. 6433832 B2) further in view of Fimoff et al. (U.S. 6687310 B1) further in view of Knutson et al. (U.S. 6788710 B1).

Referring to claim 2, depending on claim 1, the applicants conceded prior art teaches a digital TV tuner card (Figure 5 element 111) receiving the digital TV signals (Page 2 Paragraph 6).

The applicant's conceded art, Lindemann, Lee, Williams and Watanabe fail to teach the system according to claim 1, wherein the signal dividing means is comprised of a tuner, a VSB (Vestigial Side Band) demodulating part demodulating a high frequency signal received by the tuner into a VSB analog signal, a Viterbi decoder

transforming the VSB analog signal into a digital signal, and a demultiplexer dividing the digital signal transformed by the Viterbi decoder into the video signal and the audio signal.

In an analogous art Fimoff teaches a tuner (Figure 9 element 62), a VSB (Vestigial Side Band) demodulating part demodulating a high frequency signal received by the tuner into a VSB analog signal (Figure 9 element 64 and element 66 teach a VSB demodulator and the signal that is output is in the analog form because the signal is converted to digital by element 66) and a demultiplexer dividing the digital signal into the video signal and the audio signal (Figure 9 elements 70, 72, and 74).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combine systems of the applicant's prior art, Lindemann, Lee, Williams, and Watanabe using the tuner, VSB demodulator and demultiplexer system of Fimoff for the purpose of using the M-level VSB transmission system to reduce the signal to noise ratio at higher channel frequencies (Column 1 lines 59-67 and Column 2 lines 1-4, Fimoff).

The applicant's conceded prior art, Lindemann, Lee, Williams, Watanabe and Fimoff fail to teach a Viterbi decoder transforming the VSB analog signal into a digital signal.

In an analogous art Knutson teaches a Viterbi decoder transforming the VSB analog signal into a digital signal (Figure 1 teaches the Trellis decoder which is a Viterbi decoder receiving a signal from a VSB demodulator element 15 and Figure 1 element

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17 and Column 3 lines 37-42 teaches a deinterleaver unscrambling the data stream and in order for the data stream to be deinterleaved the signal would have to be in a digital form so the decoder has to output a digital signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combine systems of the applicant's prior art, Lindemann, Lee, Williams, Watanabe, and Fimoff using the Viterbi decoder system of Knutson for the purpose of have increased error correction capability with a trellis encoder/decoder in the encoder/modulation to decoder/modulation processing (Column 3 lines 66-67 and Column 4 line 1, Knutson).

Referring to claim 3, depending on claim 2, the applicant's prior art teaches the system wherein the video decoding means includes a video decoder (Figure 5 element 114) decoding the video signal outputted from the digital TV tuner card into R/G/B signals, and a video signal transforming part transforming the R/G/B signals into Y/Pb/Pr low frequency analog video signals (Page 2, Paragraph 6 teaches the decoder; and according to the detailed specification of the applicant page 9 paragraph 34 low frequency signals are un-modulated signals/non-transmission signals, thus page 2 paragraph 6 teaches un-modulated analog signals coming out of a decoder element 114 in Figure 5 which are thus low frequency).

Referring to claim 4, depending on claim 2, Lee additionally teaches the system wherein wherein the audio decoding means includes an audio decoder decoding the audio signal outputted from the digital TV tuner card into six audio signals corresponding to 5.1 channels in an AC-3 manner (Figure 1 and Column 2 lines 50-55 teach 5.1 audio; Figure 2 and Column 2 lines 62-65 teaches encoding the signal to AC-3 format; Figure 2 and Figure 3 and Column 2 lines 66-67 and Column 3 lines 1-2 and Column 3 lines 20-39 teach element 230 a decoder receiving the encoded AC-3 signal and decoding the 5.1 channel audio signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of applicant's prior art, Lindemann, Lee, Williams, Watanabe, Fimoff, and Kuntson using the the AC-3 decoder system of Lee for the purpose of being able to output to wireless speakers a signal based on an IEEE 1394 protocol (Column 2 lines 1-5, Lee).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lindemann et al. (U.S. 2004/0223622 A1) further in view of Lee (U.S. 6608907 B1) further in view of Williams, Jr et al. (U.S. 6175861 B1) further in view of Watanabe et al. (U.S. 6433832 B2) further in view of Fimoff et al. (U.S. 6687310 B1) further in view of Knutson et al. (U.S. 6788710 B1) further in view of Curtin (U.S. 6684060 B1).

Referring to claim 5, depending on claim 4, the applicant's conceded prior art, Lindemann, Williams, Watanabe, Fimoff, Knutson, and Lee fail to teach the system wherein the audio apparatus is comprised of six speakers applicable to the 5.1 channels.

In an analogous art Curtin teaches the system wherein the audio apparatus is comprised of six speakers applicable to the 5.1 channels (Column 4 lines 36-47 and Figure 1 teach elements 130, 135, 140, 145 and 150 which are wireless speakers).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of applicant's prior art, Lindemann, Williams, Watanabe, Lee, Fimoff, and Knutson using the wireless 5.1 channel speaker system of Curtin for the purpose of avoiding long wires that may create adverse impedance matching situation for an amplifier/driver thereby affecting fidelity (Column 2 lines 5-7, Curtin).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lindemann et al. (U.S. 2004/0223622 A1) further in view of Lee (U.S. 6608907 B1) further in view of Williams, Jr et al. (U.S. 6175861 B1) further in view of Watanabe et al. (U.S. 6433832 B2) further in view of Schupak (U.S. 6069621).

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Referring to claim 6, depending on claim 1, Lindemann teaches the system according to claim 1, wherein the first wireless receiver is comprised on at least one antenna (Figure 16 element 300).

Watanabe teaches wherein the second wireless receiver is comprised of at least one antenna (Column 5 lines 32-39 and Figure 1 teach transmitting the component video signals by radio transmission/reception which is wireless which inherently means to be able to receive the signal an antenna is required).

The applicant's conceded prior art, Lindemann, Lee, Williams, and Watanabe fail to teach a wireless transmitter comprised of at least one antenna.

In an analogous art Schupak teaches a wireless transmitter comprised of at least one antenna (Column 4 lines 31-36 and Figure 4 teaches transmitting a signal wirelessly from an antenna and Column 3 lines 1-3 teaches the signal output from element 4 is a combined audio/visual signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicant's prior art, Lindemann, Lee, Williams, Watanabe using the antenna system of Schupak for the purpose of avoiding having unsightly wires running from room to room in the house.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Williams, Jr et al. (U.S. 6175861 B1) further in view of Watanabe et al. (U.S. 6433832 B2).

Referring to claim 7, the applicant's prior art teaches a system for restoring a digital video signal (Figure 5 and Page 2 paragraph 6), comprising a computer system (Figure 5 elements 111, 114, 115, 117) and a display system (Figure 5 element 119), the computer system comprising:

a video signal outputting means outputting the digital video signal (Page 2, Paragraph 6),

a video decoding means decoding the digital video signals outputted from the video signal outputting means into analog video signals, and outputting low frequency analog video signals by colors (Page 2, Paragraph 6; and according to the detailed specification of the applicant page 9, paragraph 34 teaches low frequency signals are un-modulated signals/non-transmission signals, thus page 2 paragraph 6 teaches un-modulated analog signals coming out of a decoder element 114 in Figure 5 which are thus low frequency),

the display system comprising (Figure 5 element 119):

The applicant's conceded prior art fails to teach a plurality of frequency-modulators frequency-modulating the low frequency analog video signals into high frequency signals, in response to intermediate frequencies, respectively, and a wireless transmitter wirelessly transmitting the signals modulated by the frequency-modulators; and a plurality of wireless receivers wirelessly receiving the analog video signals transmitted from the wireless transmitter, a plurality of frequency demodulators respectively connected to the wireless receivers and frequency-demodulating the

analog video signals by colors, and a display apparatus outputting the video signals demodulated by the frequency demodulators.

In a related art Williams teaches modulators frequency-modulating the low frequency analog video signals into high frequency signals (Column 20 lines 51-67 and Column 21 lines 1-21 teach modulator and demodulator sets existing for receiving component input of a video signal and the monitor in Figure 27 element 225 has demodulators to receive the signal; and according to the detailed specification of the applicant page 9, paragraph 34 teaches low frequency signals are un-modulated signals/non-transmission signals, thus page 2 paragraph 6 teaches un-modulated analog signals (component signals) coming out of a decoder element 114 in Figure 5 which are thus low frequency, thus high frequency signals are modulated transmission signals; According to Figure 27 in Williams the Red, Green, Blue component signals going into the video channel modulators are low frequency signals, and the signals over element 65 are high frequency signals), respectively, and a transmitter transmitting the signals modulated by the frequency-modulators (Figure 27 teaches a connection to element 65 from server 20 which is transmitting the component signals),

a plurality of receivers receiving the analog video signals transmitted from the transmitter (Column 20 lines 51-67 and Column 21 lines 1-21 teaches modulator demodulator sets existing for receiving component input of a video signal and the monitor in Figure 27 element 225 has demodulators to receive the signal, the receivers are the wires leading to the demodulators in Figure 27),

a plurality of frequency demodulators respectively connected to the receivers and frequency-demodulating the analog video signals by the colors (Column 20 lines 51-67 and Column 21 lines 1-21 teaches modulator demodulator sets existing for receiving component input of a video signal and the monitor in Figure 27 element 225 has demodulators to receive the signal), and

display apparatuses outputting the video signals demodulated by the frequency demodulators (Figure 27 element 225).

At the time the invention was made it would have been obvious for one skilled in the art to modify the system of the applicant's prior art with the a plurality of frequency-modulators frequency-modulating the video signals of Williams for the purpose being able to integrate the use of a television or any display device that can only receive component video input signals.

The applicant's conceded prior art and Williams fails to teach a wireless transmitter transmitting the video signals.

In an analogous art Watanabe teaches a wireless transmitter transmitting the video signals (Figure 1 element 10 and Column 5 lines 9-18 and lines 33-39 teach a transmitting device that outputs RGB signals at element 9 and the signals can be transmitted wirelessly using radio transmission).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicants prior art and Williams using the

wireless module system of Watanabe for the purpose of transmitting a the image information between the two devices without using wires that can get tangled.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Williams, Jr et al. (U.S. 6175861 B1) further in view of Watanabe et al. (U.S. 6433832 B2) further in view of Fimoff et al. (U.S. 6687310 B1) further in view of Knutson et al. (U.S. 6788710 B1).

Referring to claim 8, depending on claim 7, the applicants conceded prior art teaches a digital TV tuner card (Figure 5 element 111) receiving the digital TV signals (Page 2 Paragraph 6).

The applicant's conceded art, Williams and Watanabe fail to teach the system according to claim 1, wherein the signal dividing means is comprised of a tuner, a VSB (Vestigial Side Band) demodulating part demodulating a high frequency signal received by the tuner into a VSB analog signal, a Viterbi decoder transforming the VSB analog signal into a digital signal, and a demultiplexer dividing the digital signal transformed by the Viterbi decoder into the video signal and the audio signal.

In an analogous art Fimoff teaches a tuner (Figure 9 element 62), a VSB (Vestigial Side Band) demodulating part demodulating a high frequency signal received

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by the tuner into a VSB analog signal (Figure 9 element 64 and element 66 teach a VSB demodulator and the signal that is output is in the analog form because the signal is converted to digital by element 66) and a demultiplexer dividing the digital signal into the video signal and the audio signal (Figure 9 elements 70, 72, and 74).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combine systems of the applicant's prior art, Williams, and Watanabe using the tuner, VSB demodulator and demultiplexer system of Fimoff for the purpose of using the M-level VSB transmission system to reduce the signal to noise ratio at higher channel frequencies (Column 1 lines 59-67 and Column 2 lines 1-4, Fimoff).

The applicant's conceded prior art, Williams, Watanabe and Fimoff fail to teach a Viterbi decoder transforming the VSB analog signal into a digital signal.

In an analogous art Knutson teaches a Viterbi decoder transforming the VSB analog signal into a digital signal (Figure 1 teaches the Trellis decoder which is a Viterbi decoder receiving a signal from a VSB demodulator element 15 and Figure 1 element 17 and Column 3 lines 37-42 teaches a deinterleaver unscrambling the data stream and in order for the data stream to be deinterleaved the signal would have to be in a digital form so the decoder has to output a digital signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combine systems of the applicant's prior art, Williams, Watanabe, and Fimoff using the Viterbi decoder system of Knutson for the purpose of have

increased error correction capability with a trellis encoder/decoder in the encoder/modulation to decoder/modulation processing (Column 3 lines 66-67 and Column 4 line 1, Knutson).

Referring to claim 9, depending on claim 8, the applicant's prior art teaches the system wherein the video decoding means includes a video decoder (Figure 5 element 114) decoding the video signal outputted from the digital TV tuner card into R/G/B signals, and a video signal transforming part transforming the R/G/B signals into Y/Pb/Pr low frequency analog video signals (Page 2, Paragraph 6 teaches the decoder; and according to the detailed specification of the applicant page 9 paragraph 34 low frequency signals are un-modulated signals/non-transmission signals, thus page 2 paragraph 6 teaches un-modulated analog signals coming out of a decoder element 114 in Figure 5 which are thus low frequency).

Claims 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lindemann et al. (U.S. 2004/0223622 A1) further in view of Lee (U.S. 6608907 B1).

Referring to claim 10, the applicant's prior art teaches a system for restoring a digital audio signal (Figure 5), comprising a computer system (Figure 5 elements 111,

114, 115, 117, and 123) and an audio system (Figure 5 elements 123, 124-129), the computer system comprising:

an audio signal outputting means outputting the digital audio signal (Figure 5 element 115 is a sound card which is outputting a audio signal),

an audio decoding means (Figure 5 element 123) decoding the digital audio signals outputted from the audio signal outputting means into analog audio signals after dividing the digital audio signals corresponding to a plurality of channels (Figure 5 element 123 and page 2, paragraph 7 teaches dividing the audio signal and decoding the audio signal), having predetermined frequencies ,

the audio system (Figure 5 elements 115, 123-129).

The applicant's conceded prior art fails to teach the audio channels correspond to predetermined frequencies, a plurality of frequency-modulators frequency-modulating the low frequency analog audio signals into high frequency signals, in response to intermediate frequencies, respectively, and a wireless transmitter wirelessly transmitting the signals modulated by the frequency-modulators; and a plurality of wireless receivers wirelessly receiving the analog audio signals transmitted from the wireless transmitter, a plurality of frequency demodulators respectively connected to the wireless receivers and frequency-demodulating the analog audio signals corresponding to the channels, and an audio apparatus outputting the audio signals demodulated by the frequency demodulators.

Lindemann teaches audio channels correspond to predetermined frequencies (Paragraph 75 and Figure 16 teaches that each speaker channel is on a different carrier frequency), a plurality of frequency-modulators frequency-modulating the low frequency audio signals into high frequency signals, in response to intermediate frequencies, respectively (Paragraph 75 and Figure 16 teaches that each speaker channel is on a different carrier frequency, in order for each speaker to be able to received a signal on a different channel there has to be a frequency modulator frequency-modulating the audio signals for each channel/speaker and Figure 16 element 1611 teaches multiple speakers exist because a selector switch), and

a plurality of wireless receivers wirelessly receiving the audio signals transmitted from the wireless transmitter (Figure 16 teaches a speaker with an antenna element 300 and Paragraph 75 teaches loudspeakers (which is plural) exist) receiving signals on different frequencies/channels).

a plurality of frequency demodulators respectively connected to the wireless receivers and frequency-demodulating the audio signals corresponding to the channels (Paragraph 75 and Figure 16 teaches that each speaker channel is on a different carrier frequency and for each speaker to receive a different carrier frequency corresponding to the channel a plurality of frequency-demodulators would have to exist, one in each speaker)

an audio apparatus outputting the audio signals demodulated by the frequency demodulators (Paragraph 75 teaches the RF frequency channel embodiment of Figure

16 is implemented on Figure 15, and Figure 15A teaches multiple loudspeakers 100, 110, and 120 each with a tweeter and woofer for outputting audio).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art with the plurality of frequency-modulators frequency-modulating an audio signal of Lindemann for the purpose of reducing the number of annoying wires in a home theater system with many speakers (Paragraph 5, Lindemann).

The applicant's conceded art and Lindemann fail to teach wireless transmission of analog audio signals.

Lee teaches the wireless transmission of analog audio signals (Column 3 lines 30-39 and Figure 2 and 3).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art and Lindemann with the analog speaker system of Lee for the purpose of supporting the ability of the system to integrate into other analog systems.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lindemann et al. (U.S. 2004/0223622 A1)

further in view of Lee (U.S. 6608907 B1) further in view of Fimoff et al. (U.S. 6687310 B1) further in view of Knutson et al. (U.S. 6788710 B1).

Referring to claim 11, depending on claim 10, the applicants conceded prior art teaches a digital TV tuner card (Figure 5 element 111) receiving the digital TV signals (Page 2 Paragraph 6).

The applicant's conceded art, Lindemann and Lee fail to teach the system according to claim 1, wherein the signal dividing means is comprised of a tuner, a VSB (Vestigial Side Band) demodulating part demodulating a high frequency signal received by the tuner into a VSB analog signal, a Viterbi decoder transforming the VSB analog signal into a digital signal, and a demultiplexer dividing the digital signal transformed by the Viterbi decoder into the video signal and the audio signal.

In an analogous art Fimoff teaches a tuner (Figure 9 element 62), a VSB (Vestigial Side Band) demodulating part demodulating a high frequency signal received by the tuner into a VSB analog signal (Figure 9 element 64 and element 66 teach a VSB demodulator and the signal that is output is in the analog form because the signal is converted to digital by element 66) and a demultiplexer dividing the digital signal into the video signal and the audio signal (Figure 9 elements 70, 72, and 74).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combine systems of the applicant's prior art, Lindemann and Lee using the tuner, VSB demodulator and demultiplexer system of Fimoff for the purpose of

using the M-level VSB transmission system to reduce the signal to noise ratio at higher channel frequencies (Column 1 lines 59-67 and Column 2 lines 1-4, Fimoff).

The applicant's conceded prior art, Lindemann, Lee and Fimoff fail to teach a Viterbi decoder transforming the VSB analog signal into a digital signal.

In an analogous art Knutson teaches a Viterbi decoder transforming the VSB analog signal into a digital signal (Figure 1 teaches the Trellis decoder which is a Viterbi decoder receiving a signal from a VSB demodulator element 15 and Figure 1 element 17 and Column 3 lines 37-42 teaches a deinterleaver unscrambling the data stream and in order for the data stream to be deinterleaved the signal would have to be in a digital form so the decoder has to output a digital signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combine systems of the applicant's prior art, Lindemann, Lee, and Fimoff using the Viterbi decoder system of Knutson for the purpose of have increased error correction capability with a trellis encoder/decoder in the encoder/modulation to decoder/modulation processing (Column 3 lines 66-67 and Column 4 line 1, Knutson).

Referring to claim 12, depending on claim 10, the applicant's prior art teaches wherein the audio decoding means includes an audio decoder decoding the audio signal outputted from the digital TV tuner card into six audio signals corresponding to 5.1 channels (Figure 5 element 123 and Page 2, Paragraph 7).

The applicants prior art fails to teach decoding in an AC-3 manner.

Lee teaches the decoding in an AC-3 manner (Column 2 lines 62-65 teaches encoding a signal with an AC-3 encoder and Column 2 lines 66-67 and Column 3 lines 1-2, and 30-40 and Figure 3 element 230 teaches decoding the audio signal according to 5.1 channels, Column 2 lines 52-55 teaches 5.1).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art and Lindemann with the AC-3 decoder of Lee for the purpose of being able to receive digital audio signals.

Referring to claim 13, depending on claim 12, the applicant's conceded prior art teaches the system wherein the audio apparatus is comprised of six speakers applicable to the 5.1 channels (Figure 5 elements 115, 123-129).

Claims 14, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lindemann et al. (U.S. 2004/0223622 A1) further in view of Lee (U.S. 6608907 B1) further in view of Williams, Jr. et al. (U.S. 6175861 B1).

Referring to claim 14 the applicants prior art teaches a method for restoring a digital TV signal (Page 2 Paragraphs 6, 7, 8), comprising the steps of:

dividing the digital TV signal into a digital video signal and an digital audio signal after a predetermined signal processing (Page 2, Paragraph 6 and Figure 5 element 111);

decoding the digital video signal into low frequency analog video signal, by colors (Page 2, Paragraph 6 and Figure 5 element 114);

decoding the digital audio signal into analog audio signal with a plurality of channels (Page 2, Paragraph 7).

The applicants prior art fails to teach corresponding to predetermined frequencies;

modulating the low frequency analog video and audio signals into high frequency signals having predetermined intermediate frequencies, respectively;

transmitting the frequency-modulated audio signals by wireless;

receiving the transmitted audio signals and demodulating the received signals;

and

outputting the demodulated audio signals to an audio apparatuses.

Lindemann teaches corresponding to predetermined frequencies (Paragraph 75 and Figure 16 teach each speaker can be set to receive a specific channel or frequency);

modulating the low frequency and audio signals into high frequency signals having predetermined intermediate frequencies, respectively (Paragraph 75 and Figure 16 teach each speaker can be set to receive a specific channel or frequency; and

according to the detailed specification of the applicant page 9, paragraph 34 teaches low frequency signals are un-modulated signals/non-transmission signals, thus high frequency signals are modulated signals (also paragraph 31 of the applicants spec teaches this); Lindemann teaches receiving signals via a wireless speaker system receiving signals from a CD player or DVD player in paragraph 34 so these signals would be low frequency and Figure 16 along with paragraph 75 teach that each speaker receives its own channel by selector element 1611 of Figure 16, thus multiple predetermined frequencies are being used, and the signal is demodulated thus the signal was at a high frequency);

transmitting the frequency-modulated audio signals by wireless (Figure 16 teaches element 300 an antenna and paragraph 75 teaches the signals are demodulated);

receiving the transmitted audio signals and demodulating the received signals (Figure 16 teaches element 300 an antenna and paragraph 75 teaches the signals are demodulated); and

outputting the demodulated audio signals to an audio apparatuses (Paragraph 75 teaches Figure 16 is an embodiment of Figure 15 which teaches 3 wireless loudspeakers elements 100, 110, and 120).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art with the plurality of frequency-modulators frequency-modulating an audio signal of Lindemann for the

purpose of reducing the number of annoying wires in a home theater system with many speakers (Paragraph 5, Lindemann).

The applicants conceded prior art and Lindemann fail to teach the audio signals are analog; modulating the low frequency analog video into high frequency signals having predetermined intermediate frequencies, respectively.

In an analogous art Lee teaches the audio signals are analog (Column 3 lines 30-39).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art and Lindemann with the analog speaker system of Lee for the purpose of supporting the ability of the system to integrate into other analog systems.

The applicant's conceded prior art, Lindemann, and Lee fail to teach modulating the low frequency analog video into high frequency signals having predetermined intermediate frequencies, respectively.

In an analogous art Williams teaches modulating the low frequency analog video into high frequency signals having predetermined intermediate frequencies, respectively (Column 20 lines 51-67 and Column 21 lines 1-21 teach modulator and demodulator sets existing for receiving component input of a video signal, thus the intermediate frequencies are predetermined; and the monitor in Figure 27 element 225 has

demodulators to receive the signal; According to the detailed specification of the applicant page 9, paragraph 34 teaches low frequency signals are un-modulated signals/non-transmission signals, thus page 2 paragraph 6 teaches un-modulated analog signals (component signals) coming out of a decoder element 114 in Figure 5 which are thus low frequency, thus high frequency signals are modulated transmission signals; According to Figure 27 in Williams the Red, Green, Blue component signals going into the video channel modulators are low frequency signals, and the signals over element 65 are high frequency signals).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined system of the applicant's prior art, Lindemann, and Lee with the a plurality of frequency-modulators frequency-modulating the video signals of Williams for the purpose being able to integrate the use of a television or any display device that can only receive component video input signals.

Referring to claim 15, depending on claim 14 the applicant's prior art teaches the system wherein the step of decoding the digital audio signal comprises the step of transforming the digital audio signal into six signals corresponding to 5.1 channels (Figure 5 element 123 and Paragraph 7 and 8).

Referring to claim 16, depending on claim 14 the applicant's prior art teaches wherein the audio apparatus is comprised of six speakers applicable to 5.1 channels (Figure 5 element 123 and Paragraph 7 and 8).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Lee (U.S. 6608907 B1) further in view of Lindemann et al. (U.S. 2004/0223622 A1) further in view of Schupak (U.S. 6069621) further in view of Curtin (U.S. 6684060 B1) further in view of Watanabe et al. (U.S. 6433832 B2) further in view of Williams, Jr. et al. (U.S. 6175861 B1).

Referring to claim 17, the applicant's admitted art teaches a system for reproducing a digital TV signal (Figure 5 elements 111, 114, 115, 117), comprising:

- a computer system (Figure 5 element 111) comprising:

- a digital TV tuner card (Figure 5 element 111) for receiving the digital TV signal and separating an audio signal and a video signal in MPEG-2 format from the digital TV signal for output;

- an audio decoder for receiving the separated audio signal and outputting 5.1 channel audio (Figure 5 element 123 and the applicants specification page 2, paragraph 6);

- a video decoder for receiving the separated MPEG-2 video signal and outputting an R/G/B video signal (page 2, paragraph 6);

- a video signal converter for receiving the R/G/B video signal and outputting a Y/Pb/Pr video signal (page 2, paragraph 6 teaches a video signal converting unit exists);

a display system (Figure 5) comprising:

receiving the combined signal and outputting recovered Y/Pb/Pr video signals to a digital TV for display ([0006] teaches a digital TV receiving Y/Pb/Pr signals).

The applicant's prior art fails to teach an AC-3 audio decoder for receiving the separated audio signal and outputting 5.1 channel audio; a wireless module separately modulating each video component and each audio component of said video signal and said audio using different center frequencies, combining the modulated signals and wirelessly transmitting the combined signal from a first antenna [transmitting antenna]; and first through sixth antennas and corresponding first through sixth demodulators for receiving the combined signal and outputting recovered 5.1 channel audio to a speaker system; a seventh antenna and seventh through ninth demodulators.

In an analogous art Lee teaches an AC-3 audio decoder for receiving the separated audio signal and outputting 5.1 channel audio (Figure 1 and Column 2 lines 50-55 teach 5.1 audio; Figure 2 and Column 2 lines 62-65 teaches encoding the signal to AC-3 format; Figure 2 and Figure 3 and Column 2 lines 66-67 and Column 3 lines 1-2 and Column 3 lines 20-39 teach element 230 a decoder receiving the encoded AC-3 signal and decoding the 5.1 channel audio signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the video and audio entertainment system of the applicant's conceded prior art with the AC-3 decoder system of Lee for the purpose being able to receive digital audio signals.

The applicant's conceded prior art and Lee fail to teach a wireless module separately modulating each video component of said video signal, combining the modulated signals and wirelessly transmitting the combined signal from a first antenna [transmitting antenna]; first through sixth antennas and corresponding first through sixth demodulators for receiving the combined signal and outputting recovered 5.1 channel audio to a speaker system; a seventh antenna and seventh through ninth demodulators for receiving the combined signal and outputting recovered video signals to a digital TV for display.

Lindemann teaches a wireless module separately modulating each audio component using different center frequencies (Paragraph 75 and Figure 16 teaches that each speaker channel is on a different carrier frequency).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicant's conceded prior art and Lee with the wireless module separately modulating audio frequencies on different center frequencies system Lindemann for the purpose of reducing the number of annoying wires in a home theater system with many speakers (Paragraph 5, Lindemann).

The applicants conceded prior art, Lee, and Lindemann fail to teach combining the modulated signals and wirelessly transmitting the combined signal from a first antenna; wireless module separately modulating each video component of said video signal; and first through sixth antennas and corresponding first through sixth

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demodulators for receiving the combined signal and outputting recovered 5.1 channel audio to a speaker system; a seventh antenna and seventh through ninth demodulators for receiving the combined signal and outputting recovered video signals to a digital TV for display.

In an analogous art Schupak teaches combining the modulated signals and wirelessly transmitting the combined signal from a first antenna (Column 4 lines 31-36 and Figure 4 teaches transmitting a signal wirelessly from an antenna and Column 3 lines 1-3 teaches the signal output from element 4 is a combined audio/visual signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicant's prior art, Lee, and Lindemann with the combined audio and video transmission of a signal from an antenna of Schupak for the purpose of avoiding having unsightly wires running from room to room in the house.

The applicant's conceded prior art, Lee, Lindemann, and Schupak fail to teach a wireless module separately modulating each video component of said video signal; and first through sixth antennas and corresponding first through sixth demodulators for receiving the combined signal and outputting recovered 5.1 channel audio to a speaker system; a seventh antenna and seventh through ninth demodulators for receiving the combined signal and outputting recovered video signals to a digital TV for display.

In an analogous art Curtin teaches first through sixth antennas and corresponding first through sixth demodulators for receiving the combined signal and outputting recovered 5.1 channel audio to a speaker system (Column 4 lines 36-47 and Figure 1 teach elements 130, 135, 140, 145 and 150 which are wireless speakers; Column 7 lines 6-7 and Figure 2 element 240 teach a speaker with a receiver which would be an antenna so with six speakers 6 antennas would exist and it is inherent that the signals prior to be transmitted would have to be modulated so six demodulators would have to exist one in each speaker);

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicants prior art, Lee, Lindemann, and Schupak with the wireless speaker system of Curtin for the purpose of avoiding long wires that may create adverse impedance matching situation for an amplifier/driver thereby affecting fidelity (Column 2 lines 5-7, Curtin).

The applicant, Lee, Lindemann, Schupak, and Curtin fail to teach a wireless module separately modulating each video component of said video signal; and a seventh antenna and seventh through ninth demodulators for receiving the combined signal and outputting recovered video signals to a digital TV for display.

In an analogous art Watanabe teaches a wireless module (Figure 1 element 10 and Column 5 lines 9-18 and lines 33-39 teach a receiving device that outputs RGB signals on element 9 and the signals can be transmitted wirelessly using radio transmission).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicants prior art, Lee, Schupak, and Curtin using the wireless module system of Watanabe for the purpose of transmitting a the image information between the two devices without using wires that can get tangled.

The applicant's conceded prior art, Lee, Lindemann, Schupak, Curtin, and Watanabe fail to teach separately modulating each video component of said video signal, and a seventh antenna and seventh through ninth demodulators.

In an analogous art Williams teaches a display system comprising: a seventh antenna and seventh through ninth demodulators (Column 20 lines 51-67 and Column 21 lines 1-21 teaches modulator demodulator sets existing for receiving component input of a video signal and the monitor in Figure 27 element 225 has demodulators to receive the signal).

At the time the invention was made it would have been obvious for one skilled in the art to modify the combined systems of the applicants prior art, Lee, Lindemann, Schupak, Curtin, and Watanabe using the modulator demodulator pairs for each signal system of Williams for the purpose being able to integrate the use of a television or any display device that can only receive component video input signals.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter C. Wilder whose telephone number is 571-272-2826. The examiner can normally be reached on 8 AM - 4PM Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on (571) 272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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